

SAFETY DATA SHEET

1. Identification

Product identifier ORO-TURF Spray Adjuvant

Other means of identification
Product code 009-F-1-A

Recommended use of the chemical and restrictions on use
Recommended use Adjuvant.
Restrictions on use None known.

Details of manufacturer or importer
Company Name: Oro Agri International, Ltd.
 58 Coolamon Close
 Ocean Grove, Victoria 3226 Australia

Telephone Number: +(61) 412550250

Emergency Telephone Number: Incident Spill, Leak, Fire, Exposure or Accident
 Call CHEMTREC Day or Night
 Within Australia: +(61)-290372994
 Outside Australia: +1 (703) 741-5970

Email: SDS-NA@oroagri.com

2. Hazard(s) identification

Classification of the hazardous chemical

Physical hazards	Flammable liquids	Category 3
Health hazards	Acute toxicity, inhalation	Category 4
	Skin corrosion/irritation	Category 2
	Serious eye damage/eye irritation	Category 2A
Environmental hazards	Hazardous to the aquatic environment, acute hazard	Category 2
	Hazardous to the aquatic environment, long-term hazard	Category 2

Label elements, including precautionary statements

Hazard symbol(s)



Signal word

Warning

Hazard statement(s)

Flammable liquid and vapor. Causes skin irritation. Causes serious eye irritation. Harmful if inhaled. Toxic to aquatic life with long lasting effects.

Precautionary statement(s)

Prevention

Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Avoid breathing vapors. Wash thoroughly after handling. Use only outdoors or in a well-ventilated area. Wear protective gloves/eye protection/face protection.

Response	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a POISON CENTER or doctor/physician if you feel unwell. If skin irritation occurs: Get medical advice/attention. If eye irritation persists: Get medical advice/attention. Take off contaminated clothing and wash before reuse. In case of fire: Use water fog, foam, dry chemical powder, carbon dioxide (CO ₂) for extinction.
Storage	Store in a well-ventilated place. Keep cool.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Other hazards which do not result in classification	None known.
Supplemental information	None.

3. Composition/information on ingredients

Mixture

Identity of chemical ingredients	CAS number and other unique identifiers	Concentration of ingredients (%)
Proprietary Mixture ¹		
Alcohol Ethoxylate	84133-50-6	5 - 10
Orange Oil	8028-48-6	5 - 10

Composition comments All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume. Components not listed are either non-hazardous or are below reportable limits.
¹Components CAS numbers and exact concentration have been withheld as a trade secret.

4. First-aid measures

Description of necessary first aid measures

Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Oxygen or artificial respiration if needed. Call a POISON CENTER or doctor/physician if you feel unwell.
Skin contact	Take off immediately all contaminated clothing. Rinse skin with water/shower. If skin irritation occurs: Get medical advice/attention. Wash contaminated clothing before reuse.
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.
Ingestion	Rinse mouth. Get medical attention if symptoms occur.
Personal protection for first-aid responders	Take off all contaminated clothing immediately. IF exposed or concerned: Get medical advice/attention. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before reuse.
Symptoms caused by exposure	Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. May cause redness and pain. Harmful if inhaled.
Medical attention and special treatment	Provide general supportive measures and treat symptomatically. Symptoms may be delayed.

5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media	Water fog. Foam. Dry chemical powder. Carbon dioxide (CO ₂).
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	Vapors may form explosive mixtures with air. Vapors may travel considerable distance to a source of ignition and flash back. During fire, gases hazardous to health may be formed.
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Fire fighting equipment/instructions	In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk.
Hazchem code	None.

General fire hazards Flammable liquid and vapor.
Specific methods Use standard firefighting procedures and consider the hazards of other involved materials.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Wear appropriate protective equipment and clothing during clean-up. Avoid inhalation of vapors and spray mists. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

For emergency responders Keep unnecessary personnel away. Wear appropriate protective equipment and clothing during clean-up. Use personal protection recommended in Section 8 of the SDS.

Environmental precautions Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

Methods and materials for containment and cleaning up Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep combustibles (wood, paper, oil, etc.) away from spilled material. Take precautionary measures against static discharge. Use only non-sparking tools.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Following product recovery, flush area with water.

Small Spills: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

7. Handling and storage

Precautions for safe handling Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. When using do not smoke. Explosion-proof general and local exhaust ventilation. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. Avoid inhalation of vapors and spray mists. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Use only outdoors or in a well-ventilated area. Wear appropriate personal protective equipment. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities Keep away from heat, sparks and open flame. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Store in a cool, dry place out of direct sunlight. Store in original tightly closed container. Store in a well-ventilated place. Keep in an area equipped with sprinklers. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls and personal protection

Control parameters Follow standard monitoring procedures.

Occupational exposure limits

Australia. National Workplace OELs (Workplace Exposure Standards for Airborne Contaminants, Appendix A)

Components	Type	Value
Butylated hydroxytoluene (CAS 128-37-0)	TWA	10 mg/m3
Ethanol (CAS 64-17-5)	TWA	1880 mg/m3 1000 ppm
Sodium Hydroxide (CAS 1310-73-2)	Ceiling	2 mg/m3

Australia. OELs. (Adopted National Exposure Standards for Atmospheric Contaminants in the Occupational Environment)

Components	Type	Value
Butylated hydroxytoluene (CAS 128-37-0)	TWA	10 mg/m3

Ethanol (CAS 64-17-5)	TWA	1880 mg/m ³ 1000 ppm
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US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Butylated hydroxytoluene (CAS 128-37-0)	TWA	2 mg/m ³	Inhalable fraction and vapor.
Ethanol (CAS 64-17-5)	STEL	1000 ppm	
Sodium Hydroxide (CAS 1310-73-2)	Ceiling	2 mg/m ³	

UK. EH40 Workplace Exposure Limits (WELs)

Components	Type	Value
Butylated hydroxytoluene (CAS 128-37-0)	TWA	10 mg/m ³
Ethanol (CAS 64-17-5)	TWA	1920 mg/m ³ 1000 ppm
Sodium Hydroxide (CAS 1310-73-2)	STEL	2 mg/m ³

Germany. DFG MAK List (advisory OELs). Commission for the Investigation of Health Hazards of Chemical Compounds in the Work Area (DFG)

Components	Type	Value	Form
Butylated hydroxytoluene (CAS 128-37-0)	TWA	10 mg/m ³	Vapor and aerosol, inhalable fraction.
Ethanol (CAS 64-17-5)	TWA	960 mg/m ³ 500 ppm	

Biological limit values No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls Explosion-proof general and local exhaust ventilation. Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Provide eyewash station. Provide easy access to water supply and eye wash facilities.

Individual protection measures, for example personal protective equipment (PPE)

Eye/face protection Wear safety glasses with side shields (or goggles).

Skin protection

Hand protection Wear appropriate chemical resistant gloves.

Other Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended.

Respiratory protection If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn.

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

Hygiene measures Observe any medical surveillance requirements. When using do not smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance

Physical state Liquid.

Form Liquid.

Color Green (Various).

Odor Citrus.

Odor threshold Not available.

pH 6.8 - 7.8

Melting point/freezing point Not available.

Initial boiling point and boiling range Not available.

Flash point 118.4 °F (48.0 °C) Pensky-Martens Closed Cup

Evaporation rate Not available.

Flammability (solid, gas) Not applicable.

Upper/lower flammability or explosive limits

Flammability limit – lower (%)	Not available.
Flammability limit – upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	Not available.
Vapor density	Not available.
Relative density	1.0 - 1.2 g/ml
Solubility(ies)	
Solubility (water)	Not available.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	80 - 130 mPa·s
Other physical and chemical parameters	
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Avoid heat, sparks, open flames and other ignition sources. Avoid temperatures exceeding the flash point. Contact with incompatible materials.
Incompatible materials	Strong acids.
Hazardous decomposition products	Thermal decomposition of this product can generate carbon monoxide and carbon dioxide. Sodium oxides. Sulfur oxides.

11. Toxicological information

Information on possible routes of exposure

Inhalation	Harmful if inhaled.
Skin contact	Causes skin irritation.
Eye contact	Causes serious eye irritation.
Ingestion	May cause discomfort if swallowed.

Symptoms related to exposure Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. May cause redness and pain. Harmful if inhaled.

Acute toxicity Harmful if inhaled.

Product	Species	Test Results
ORO-TURF Spray Adjuvant (CAS Mixture)		
Acute		
Dermal		
<i>Liquid</i>		
LD50	Rat	> 2000 mg/kg
Inhalation		
<i>aerosol/vapour</i>		
LC50	Rat	> 2.13 mg/l
Oral		
<i>Liquid</i>		
LD50	Rat	> 2000 mg/kg
Skin corrosion/irritation		
Irritation Corrosion - Skin		
ORO-TURF Spray Adjuvant	OECD 404	Result: Irritating to skin Species: Rabbit
Serious eye damage/irritation		
Eye		Causes serious eye irritation.

ORO-TURF Spray Adjuvant	OECD 405 Result: Irritating to eyes. Species: Rabbit
Respiratory or skin sensitization	
Respiratory sensitization	Not a respiratory sensitizer.
Skin sensitization	This product is not expected to cause skin sensitization.
Sensitization	
ORO-TURF Spray Adjuvant	OECD 406 Result: Non-sensitizing Species: Guinea pig
Germ cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
Carcinogenicity	Not classifiable as to carcinogenicity to humans.
ACGIH Carcinogens	
Butylated hydroxytoluene (CAS 128-37-0)	A4 Not classifiable as a human carcinogen.
IARC Monographs. Overall Evaluation of Carcinogenicity	
Butylated hydroxytoluene (CAS 128-37-0)	3 Not classifiable as to carcinogenicity to humans.
Reproductive toxicity	Not classified. The product contains a small amount of substance that is suspected of damaging fertility or the unborn child.
Specific target organ toxicity - single exposure	Not classified.
Specific target organ toxicity -repeated exposure	Not classified.
Aspiration hazard	Not an aspiration hazard.
Chronic effects	Prolonged inhalation may be harmful.

12. Ecological information

Ecotoxicity The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Product	Species	Test Results
ORO-TURF Spray Adjuvant (CAS Mixture)		
Aquatic		
Algae	LOEC	5.93 mg/l, 72 h
Crustacea	EC50	6.21 - 7.6 mg/l, 72 h
Fish	NOEC	2.32 mg/l, 72 h
	EC50	11 mg/l, 48 h
	LC50	13.6 mg/l, 96 h

Persistence and degradability

Bioaccumulative potential

Partition coefficient n-octanol / water (log Kow)

Ethanol (CAS 64-17-5) -0.31

Mobility in soil

No data available for this product.

Other adverse effects

No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions

Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations.

Residual waste

Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging

Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

ADG Not regulated as dangerous goods

IATA Not regulated as dangerous goods

IMDG Not regulated as dangerous goods

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not established.

Additional information

Test results from Sustained Combustion testing (L.2 of Part 3 section 32 of UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria) indicate that this material does not sustain combustion. At the discretion of the shipper, this material does not need to be considered a Dangerous Good when offered for transport by road or rail according to the ADG Code chapter 2.3.1.3(a), by air according to IATA DGR section 3.3.1.3(a), or by sea according to IMDG Code chapter 2.3.1.3.1.

15. Regulatory information**Safety, health and environmental regulations****National regulations**

This Safety Data Sheet was prepared in accordance with Australia Model Code of Practice for the preparation of Safety Data Sheets for Hazardous Chemicals (23/12/2011).

Australia Medicines & Poisons Appendix B

ALCOHOL, DEHYDRATED (CAS 64-17-5)
METHYL P-HYDROXYBENZOATE (CAS 99-76-3)

Australia Medicines & Poisons Appendix E

SODIUM HYDROXIDE (CAS 1310-73-2)

Australia Medicines & Poisons Appendix F

SODIUM HYDROXIDE (CONC<=0.5%) (CAS 1310-73-2)

Australia Medicines & Poisons Schedule 10

SODIUM HYDROXIDE (EXCLUDING ITS SALTS AND DERIVATIVES) (CAS 1310-73-2)

Australia Medicines & Poisons Schedule 5

SODIUM HYDROXIDE (EXCLUDING ITS SALTS AND DERIVATIVES) (CAS 1310-73-2)

Australia Medicines & Poisons Schedule 6

SODIUM HYDROXIDE (EXCLUDING ITS SALTS AND DERIVATIVES) (CAS 1310-73-2)

Australia National Pollutant Inventory (NPI): Threshold quantity

Ethanol (CAS 64-17-5) 10 TONNES/YR Threshold Category: 1

High Volume Industrial Chemicals (HVIC)

Dodecylbenzenesulfonic Acid (CAS 68584-22-5) 1000 - 9999 TONNES See the regulation for additional information.
Ethanol (CAS 64-17-5) 10000 - 99999 TONNES See the regulation for additional information.
Sodium Hydroxide (CAS 1310-73-2) > 1000000 TONNES See the regulation for additional information.
Sodium Laurylthethersulfate (CAS 9004-82-4) 1000 - 9999 TONNES See the regulation for additional information.

Importation of Ozone Depleting Substances (Customs(Prohibited imports) Regulations 1956, Schedule 10)

Not listed.

National Pollutant Inventory (NPI) substance reporting list

Not listed.

Prohibited Carcinogenic Substances

Not regulated.

Prohibited Substances (National Model Regulation for the control of Workplace Hazardous Substances, Schedule 2 NOHSC:1005 (1994) as amended)

Not listed.

Restricted Importation of Organochlorine Chemicals (Customs(Prohibited Imports) Regulations 1956, Schedule 9)

Not listed.

Restricted Carcinogenic Substances

Not regulated.

International regulations**Stockholm Convention**

Not applicable.

Rotterdam Convention

Not applicable.

Kyoto protocol

Not applicable.

Montreal Protocol

Not applicable.

Basel Convention

Not applicable.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	No
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	No

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information

Disclaimer

ORO AGRI cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. As conditions of actual product use are beyond control of the supplier, it is assumed that users of this material have been fully trained in accordance with all applicable occupational health and safety requirements.

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